igennus
HEALTHCARE NUTRITION
Be kind to your health™

Clinical guide

Nutritional interventions for managing cardiovascular disorders

Cardiovascular disease (CVD) is the leading cause of death worldwide; strategies for primary and secondary prevention are therefore increasingly necessary. Nutrition is a key factor in the onset and progression of illness, with numerous nutrients now understood to offer significant protective and therapeutic benefits.

Omega-3 fatty acids exert multiple positive physiological effects on the cardiovascular system and deficiencies are known to directly influence CVD risk. An elevated level of *homocysteine* – a by-product of the methylation cycle – is another well-documented risk factor for CVD. Folate, vitamin B6 and vitamin B12 play key roles in converting homocysteine into the essential amino acids; supplementation with these key nutrients, alongside long-chain omega-3 polyunsaturated fatty acids, offers preventive strategies for low and high risk cardiovascular cohorts (primary prevention), as well as those with an established cardiovascular disease (secondary prevention). Users of statins are at considerable risk of coenzyme Q10 (CoQ10) depletion and thus CoQ10 replenishment may be essential to prevent related side effects. In addition, CoQ10 confers numerous benefits to cardiovascular function, both as an antioxidant and due to its vital role in mitochondrial function. The heart contains the most mitochondria of all the organs.

Treatment protocol for CVD

It is clear from fatty acid intervention studies that, when individuals are recruited irrespective of their omega-3 baseline levels and then treated with fixed doses (ignoring the large inter-individual variability in omega-3 uptake), the treatment outcomes derived from omega-3 supplementation can vary considerably. *Key* to successful intervention is the understanding that we are metabolically unique individuals with highly personal nutrition requirements. As such, at Igennus we focus on omega-3 interventions to optimise therapeutic outcomes at an individual level rather than endorsing a '*one size fits all*' dosing regimen. When baseline omega-3 levels and body weight are taken into account together with client biomarker results from the Opti-O-3 test, it is possible to personalise dosing to bring clients' omega-3 levels into the desired ranges quickly and efficiently.

Dosing chart

The Opti-O-3 biomarker test is highly effective when used in conjunction with our therapeutic range of supplements. By identifying the actual dose required to achieve an omega-3 index of ≥8% and an AA to EPA ratio of 1.5-3:1, it offers the ideal solution to personalised nutrition. When it is not possible to use the Opti-O-3 biomarker test, we suggest the following minimum doses.

Product	Dose	Duration
Pharmepa RESTORE (cholesterol management)	2 x 2 capsules daily	6 months (minimum)
Pharmepa RESTORE (triglyceride management)	4 x 2 capsules daily	6 months (minimum)
Pharmepa RESTORE (to lower blood pressure)	2 x 2 capsules daily	6 months (minimum)
Homocysteine Control VESIsorb™ Ubiquinol	3 x 1 tablet daily 1 x capsule daily	6 months 6 months
Pharmepa MAINTAIN	3 x 1 capsule daily	from 6 months onwards
Homocysteine Control VESIsorb™ Ubiquinol	3 x 1 tablet daily 1 x capsule daily	from 6 months onwards from 6 months onwards

Notes

- Capsules and tablets should be taken as a split-dose **and with food** for optimum absorption and to improve bioavailability
- At 6 months, if client is happy with level of improvement, move onto 2 x Pharmepa MAINTAIN daily
- Should symptoms show signs of recurrence, increase dosage to 3 x Pharmepa MAINTAIN daily

igennus
HEALTHCARE NUTRITION
Be kind to your health™

Clinical guide

Mechanisms of action of cardiovascular management protocol

- Restores a healthy AA to EPA ratio to regulate inflammation
  - Reduces *pro*-inflammatory cytokines
  - Increases anti-inflammatory products
- Increases the omega-3 index
- Improves heart rate variability
- Favourable effects on blood lipids
  - Reduction in non-HDL-C l and TG
  - Increase in HDL-C levels
  - Increases LDL particle size
- Provides endothelial protective effects
- Decreases platelet aggregation and improves blood flow
- Deceases blood pressure
- Improves methylation processes and recycles homocysteine
- Increases antioxidant (glutathione) levels

Contraindications

Omega-3 thins the blood and can decrease blood pressure. Whilst it is perfectly safe to take alongside anticoagulant or antihypertensive medication we recommend that the patient inform their doctor.
Side effects: taking capsules with meals can help decrease the likelihood of fishy aftertaste, belching, nausea, and loose stools occasionally experienced when taking high dose omega-3.
Warning: pregnant or lactating women should consult their doctor before taking any food supplement.

The science

- Early epidemiological observations show a link between cardiovascular health and fish/omega-3 consumption.
- High consumption of fish results in low ratios of AA to EPA.
- Prospective cohort studies indicate that consuming fish or fish oil containing omega-3 is associated with decreased cardiovascular-related death.
- Randomised control trials (RCTs) indicate that doses >1 g/d and at doses <3 g/d omega-3 can improve cardiovascular disease risk factors, including: lipid profiles, blood pressure, platelet aggregation, inflammation and vascular function.
- An omega-3 index [EPA+DHA] of >8% is associated with 90% less risk for sudden cardiac death, as compared to an omega-3 index of <4%.
- A high AA to EPA ratio is a key risk factor associated with a number of cardiovascular issues, including: pulmonary thromboembolism, angina, acute coronary syndrome and has been flagged in many cardiovascular intervention trials.
- Intake of 1 g/day omega-3 fatty acids is recommended for cardiovascular disease prevention, treatment after a myocardial infarction, prevention of sudden death, and secondary prevention of cardiovascular disease.
- In JELIS (Japan eicosapentaenoic acid lipid intervention study), increasing EPA and reducing AA to EPA ratio via EPA supplementation (1.8g/day) significantly reduced coronary events in patients with hypercholesterolemia under statin treatment by 19%.
- Studies showing the unique benefits of EPA in secondary prevention include ANCHOR & MARINE on both lipid profiles and inflammatory markers.
- The FDA approved a high purity pure EPA product in 2012, considered safe and effective for hypertriglyceridaemia.
- Statin therapy is an effective method of CVD prevention via inhibition of HMG-CoA reductase, the enzyme responsible for the regulation of cholesterol and coenzyme Q10 synthesis. Statin users experience unpleasant muscle wasting side effects arising from the block in CoQ10 biosynthesis.
- CoQ10 in the form of ubiquinol used in combination with statin treatment regimens may protect muscle cells from myopathies and should be advised for all statin users.
- Elevated levels of circulating total homocysteine levels are a well-documented risk factor for the development of cardiovascular disease.
- A 3 μmol/L decrease in serum homocysteine lowers the risk of myocardial infarction and stroke by 15% and 24% respectively, 5 μmol/L increase increases coronary event risk by approximately 20%.
- Levels of homocysteine in the blood are directly influenced by the B-complex vitamins, folate, vitamin B6 and vitamin B12.
- Meta-analysis and stratification of a number of large vitamin trials have shown supplementation with the B-vitamins to be effective in the primary prevention of CVD and secondary prevention of disease if statin therapy is accompanied by serious adverse effects.